Abstract
This paper introduces a new approach for generating patterns of phenomena associated to power quality (PQ) using continuous wavelet transform (CWT). These patterns may be used for identification of power quality (PQ) disturbances present in electric networks. The proposed new difference coefficient matrix (DCM) is calculated from the difference of the CWT coefficients of the pure sinusoidal signal and the CWT coefficients of the PQ disturbance signal. Then, the scale wise sums of coefficients of all the rows of DCM give unique feature matrix (UFM). This paper shows that the UFM possess unique features that can be used to generate patterns of various PQ disturbances. The procedure to implement the proposed approach is given with its application on various PQ disturbances of different magnitudes namely sag, interruption, swell, transient, harmonics, and flicker. The results show that unique pattern is obtained for each PQ disturbance irrespective of its magnitude, which can be treated as signature for that PQ disturbance.

Reference

- Garcia, V.V., Gualdran, C.A.D., Plata, G.O., “Obtaining patterns for classification of power quality disturbances using biorthogonal wavelets, RMS value and support vector machines," in
Continuous Wavelet Transform Applied to Generate Patterns of Phenomena Associated to Power Quality


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